WHAT IS CLAIMED IS:

1. A method for smoothing, comprising:
loading, in a data processing system, a model having at least one node;
receiving a selection of a node of the model;
determining a nodal valency of the node;
determining an element connectivity pattern of the node;
performing a smoothing operation on the node according to the nodal valency and the element connectivity pattern; and
storing the model.

2. The method of claim 1, wherein
if the element connectivity pattern is a triangle, then incenter-based smoothing is performed;
if the element connectivity pattern is a quad-only mesh, then isoparametric-Laplace smoothing is performed;
if the element connectivity pattern is a mapped region, then equipotential smoothing is performed; and
if the element connectivity pattern is a free-mixed mesh, then combined incenter and laplacian smoothing is performed.

3. The method of claim 1, wherein the smoothing of the node is performed using

$$Pi' = \sum_{n=1}^{N} Fn(C,V) * \Omega n\,(C,V)$$

and wherein i is the node to be smoothed, i is connected to N elements, Pi' is the new position of node i, Fn is the variational weight factor for n-th element Ωn is the positional function for n-th element, C denotes the connectivity pattern of the node, and V indicates the valency of the node.

4. The method of claim 1, further comprising performing an interior angle screening process.

5. The method of claim 1, further comprising constraining the node within a predetermined tolerance.

6. A data processing system having at least a processor an accessible memory, comprising:
means for loading a model having at least one node;
means for receiving a selection of a node of the graphic model;
means for determining a nodal valency of the node;
means for determining an element connectivity pattern of the node;
means for performing a smoothing operation on the node according to the nodal valency and the element connectivity pattern; and
means for storing the model.

7. The data processing system of claim 6, wherein
if the element connectivity pattern is a triangle, then incenter-based smoothing is performed;
if the element connectivity pattern is a quad-only mesh, then isoparametric-Laplace smoothing is performed;
if the element connectivity pattern is a mapped region, then equipotential smoothing is performed; and
if the element connectivity pattern is a free-mixed mesh, then combined incenter and laplacian smoothing is performed.

8. The data processing system of claim 6, wherein the smoothing of the node is performed using

$$Pi' = \sum_{n=1}^{N} Fn(C,V) * \Omega n\,(C,V)$$

and wherein i is the node to be smoothed, i is connected to N elements, Pi' is the new position of node i, Fn is the variational weight factor for n-th element Ωn is the positional function for n-th element, C denotes the connectivity pattern of the node, and V indicates the valency of the node.

9. The data processing system of claim 6, further comprising means for performing an interior angle screening process.

10. The data processing system of claim 6, further comprising means for constraining the node within a predetermined tolerance.

11. A computer program product tangibly embodied in a machine-readable medium, comprising:
instructions for loading, in a data processing system, a model having at least one node;
instructions for receiving a selection of a node of the graphic model;
instructions for determining a nodal valency of the node;
instructions for determining an element connectivity pattern of the node;
instructions for performing a smoothing operation on the node according to the nodal valency and the element connectivity pattern; and
instructions for storing the model.

12. The computer program product of claim 11, wherein
if the element connectivity pattern is a triangle, then incenter-based smoothing is performed;
if the element connectivity pattern is a quad-only mesh, then isoparametric-Laplace smoothing is performed;
if the element connectivity pattern is a mapped region, then equipotential smoothing is performed; and
if the element connectivity pattern is a free-mixed mesh, then combined incenter and laplacian smoothing is performed.

13. The computer program product of claim 11, wherein the smoothing of the node is performed according using

$$Pi' = \sum_{n=1}^{N} Fn(C,V) * \Omega n\,(C,V)$$

and wherein i is the node to be smoothed, i is connected to N elements, Pi' is the new position of node i, Fn is the variational weight factor for n-th element Ωn is the positional function for n-th element, C denotes the connectivity pattern of the node, and V indicates the valency of the node.

14. The computer program product of claim 11, further comprising instructions for performing an interior angle screening process.

15. The computer program product of claim 11, further comprising instructions for constraining the node within a predetermined tolerance.